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NON-RESIDENTIAL BUILDING MATERIALS PRICE INDEX

1935 - 1952

LABOUR AND PRICES DIVISION
Prices Section

EDMOND CLOUTIER, C.M.G., O.A., D.S.P.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1953

PREFACE

This publication introduces a second special purpose wholesale price index related to the construction industry, titled "Non-Residential Building Materials Price Index." It replaces a series known as the General Building Materials Price Index, and supplements a residential index which has been available for some years. It has been constructed specifically to measure the price change of materials used in non-residential building construction.

The residential and non-residential building segments of construction use different relative amounts of materials, and to some extent, different materials. This means that changes in the prices of building materials have different influences on construction costs in the two segments, and has required the construction of a separate materials price index covering non-residential building.

Surveys to obtain the basic information required for index weights were undertaken with the assistance and co-operation of the Canadian Construction Association. The Bureau wishes to express its appreciation of the officials of that organization, and to the general contractors and trade contractors who supplied the data on expenditure for building materials. Without their generous response the project would not have been possible.

This project has been carried out by Mr. C. Baldwin in co-operation with the Bureau's wholesale prices staff. The work was done in the Prices Section of the Labour and Prices Division.

HERBERT MARSHALL,
Dominion Statistician.

Ottawa, Canada,
August, 1953.



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INTRODUCTION

The importance in the Canadian economy of expenditure on new construction is evident from the fact that during the post-war years such construction has averaged over 12 per cent of gross national product. Of this total residential construction accounted for approximately 33 per cent, non-residential building construction 34 per cent and engineering construction, 33 per cent. Knowledge of changing prices of building materials entering into construction is important for purposes of both price analysis and estimating changing construction and replacement costs, and for some years the Bureau has published two price indexes of building materials. A "Price Index of Residential Building Materials" which relates specifically to residential building construction was first published in 1949². The record of this index is available back to 1926. The second index is a general price index of building materials, which has long formed a constituent group of a purpose classification of wholesale price index numbers, and which is available back to 1890. This document introduces a new index similar to the residential series but related to prices of materials entering non-residential building construction.

The General Building Materials Price Index has often been used in the past as a substitute for a price index of non-residential building materials, but

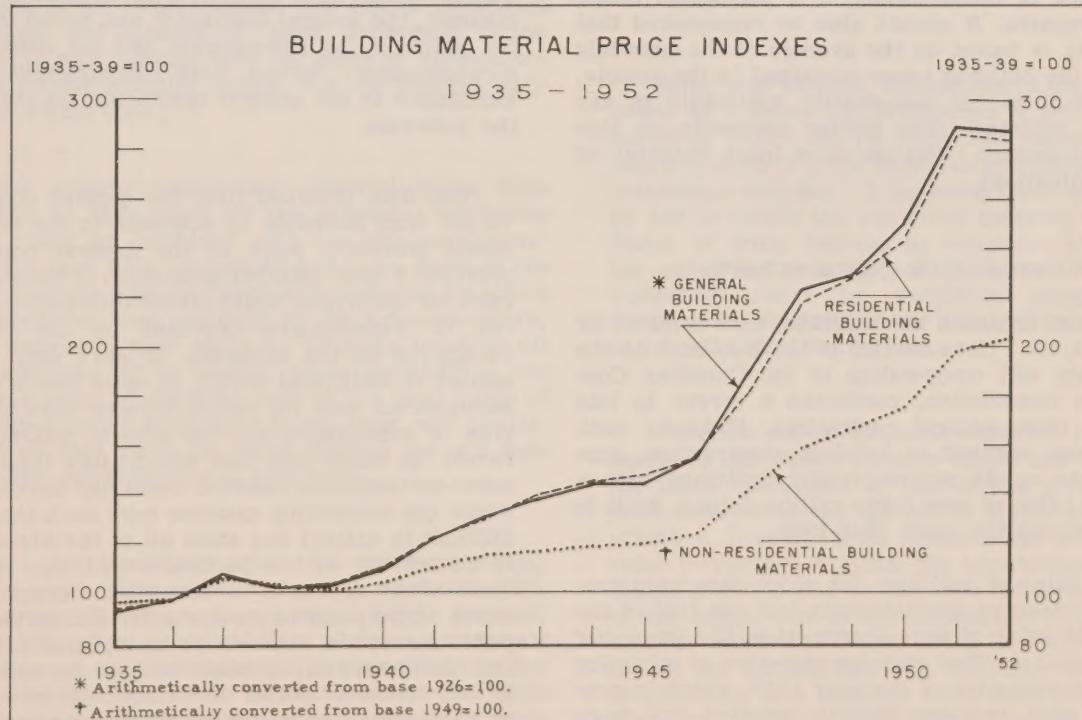
1. For a study of the importance of investment in new construction in the Canadian economy see, "Private and Public Investment in Canada, 1926-1951", Department of Trade and Commerce, Ottawa, November 1951.

2. See D.B.S. Special bulletin, "Price Index Numbers of Residential Building Materials, 1926-1948.

it is quite unsatisfactory for this use. Whereas the new non-residential index introduced in this publication is based upon the value of building materials used in such structures as hospitals, office buildings, factories, warehouses and garages, the general building materials series conforms to the weighting pattern of the general wholesale index and is based on total marketings of all construction materials, including imports and exports. In view of the fact that lumber marketings are composed to a very considerable extent of exports, lumber has too large a weight in the general building materials index, for it to be applicable to non-residential construction. Thus the lumber products group has a weight of 43.4 per cent in the General Building Materials Index as compared with 10.5 per cent in the Non-Residential Building Materials Index. This, combined with the fact that the lumber has increased much more in price since pre-war than any other group, leads to an overstatement by the General Building Material series of the price rise of building materials entering into construction in Canada of non-residential buildings.

The substantial difference in the movements of the two series may be seen in Chart I, below, where both indexes are shown on the base 1935-1939 = 100. On the other hand it will be noted that the Residential index, which for comparative purposes is also shown in Chart I, has a movement similar to that of the General Building Materials Index. This is largely because of the coincidence of similar weights for lumber products, which have a weight in the former series of 42.6 per cent, and in the latter, 43.4 per cent.

CHART - I



In view of the fact that two special purpose building material price indexes are now available, (the Non-Residential Building and the Residential Building Materials Price Indexes) and because the weights of the general index refer to 1926, publication of the General Building Materials Price Index is being discontinued. However, it will be available on request for a limited time. The desirability of constructing a general purpose building materials price index similar to General Building Materials Price index, but on a 1949 base, will be considered during the course of the present revision program of Bureau wholesale price index numbers.

The Non-Residential Building Material Price Index will be published in the monthly D.B.S. publications "Prices and Price Indexes" and "Canadian Statistical Review".

CONCEPT AND LIMITATIONS

The Non-Residential Building Materials Price Index has been constructed to measure the price change of building materials used in the construction of new non-residential buildings. While it is obvious from the title that the index does not apply to residential construction, it is somewhat less obvious that the series is likewise not applicable to engineering construction. The word, "building", is included in the title to signify the fact that the index should be restricted in its use to buildings of the type already mentioned, and not applied to structures such as power dams, roads and railroads, bridges, docks, and electric power plants. Insofar as it does reflect the price change of materials used in the latter type of construction, it is accidental rather than purposive. It should also be remembered that the index is based on the average of the materials used in the building types contained in the sample, and that it is not necessarily applicable to any specific building. (For further comments on this point see Section "Evaluation of Index Weights" of this publication).

SOURCE OF INDEX WEIGHTS

In order to obtain the weighting data required for the index, the Prices Section of the Bureau, with the assistance and co-operation of the Canadian Construction Association, conducted a survey in late 1950 of large general contractors. Forty-six such contractors engaged in building construction, supplied data on 99 non-residential buildings with a contract value of over thirty million dollars, built in Canada during the years 1948-1950.

The value of buildings for which data were supplied represented approximately four per cent of the total 1949 value of such construction. The three year period was specified with the objective of obtaining data representative of the year 1949, which in conformity with post-war Bureau practice has been selected as the base period equalling 100.

To obtain the cost of materials incorporated in the total value of sub-contracts, schedules were sent to the sub-contractors who were reported by the general contractors as having worked on the buildings under study. They were asked to record the total cost of materials used in the sub-contracts, with detail as to different kinds of materials used. The amount of detail submitted varied from a simple statement of the cost of materials used to elaborate break-downs giving the size, kind and quality of items and materials used in the sub-contract. The relatively few cases of non-response were handled by making estimates of material cost on the basis of similar sub-contract data received.

As with the general contractors there was probably some under-estimation of expenditure, in this instance caused by failure to give the cost of the materials f.o.b. job-site, thus excluding certain shop and transportation costs expended on the material. This exclusion tends to counterbalance the smaller amount of under-estimation of expenditure by the general contractors in those material groups where sub-contracts predominate; and to spread any total under-estimation of material cost evenly over all material groups. This is of some consequence since it is the importance of a material group relative to other material groups, and not the absolute size of the groups, which determines the weighting pattern for a price index.

The schedule sent to the general contractor asked for total on-site labour costs, and the cost of each of 36 different groups of material and equipment, both by direct purchase and by the letting of sub-contracts. If the cost was incurred by letting a sub-contract, the general contractor was asked to record the value of the sub-contract and the name of the sub-contractor. Bureau field representatives gave assistance to the general contractors in completing the schedule.

The data obtained from the general contractors varied from schedule to schedule in the amount of detail provided. Some of the general contractors provided a most detailed breakdown of their expenditures for materials, while others followed the grouping of expenditures provided by the thirty-six categories on the schedule, or gave only a small amount of additional detail. In some cases a single sub-contract was let which covered more than one type of expenditure and the general contractor was forced to enter only one expenditure figure. Some under-estimation of material costs may have occurred where the accounting systems were such that it was difficult to extract and name all of the expenditures in connection with a particular building. However, there would appear to be no strong a priori reasons which would point to greater under-estimation in any particular type of expenditure, except that it is likely that under-estimation would be less for expenditure by sub-contract than by direct purchase of materials by the general contractor. Sub-contracts are usually of such a size that they would not be easily over-

looked. The effect of any such under-estimation on the pattern of material expenditures is probably small and is at least partly counter-balanced by an under-estimation of material cost by the sub-contractors which is dealt with in the following two paragraphs.

PROCESSING OF SURVEY DATA

As the buildings for which data were obtained could not be considered a random sample, they were divided into the following nine use-type groups representing the whole of non-residential building construction. The numbers opposite the use-type descriptions in the listing refer to the number of buildings contained in the sample of each use-type.

churches	6
factories	12
garages	5
hospitals	8
office buildings	15
schools	22
stores	7
warehouses	16
other	8
Total	99

For each of the above groupings expenditures on materials were classified by type of material into twelve broad groups. For example, all expenditures on sand, gravel, crushed stone, cement and concrete mix were classified in one group. Total expenditure on each of the twelve groups was further classified by items and classes of items. Reference to the appendix will indicate both the kinds of expenditure in the twelve material groups, and the item classification within them.

The general contractors' material costs were useable as they came off the schedule, but before they could be combined with the sub-contractors' material cost data, estimates had to be made of the total material cost for those sub-contracts for which no schedules were returned by the sub-contractors. The estimates were made by grouping together all sub-contracts of a similar type; determining the average ratio of material cost to the total value of the sub-contract applicable to the type; and finally, applying this ratio to value figures for all non-response sub-contracts of that type.

In a few instances where for small commodity groups expenditure patterns were not obtainable from the survey, data from other sources had to be used. Information from other studies, various government departments, and from informed sources in the trades was used to supplement survey data, so that estimates of expenditure patterns could be made in these cases.

A pattern of material costs representative of all new non-residential building construction, was obtained by weighting the use-type patterns according to the estimated value of construction in 1949 of each of the use-type groupings. This weighting process was confined to the level of the twelve major material groupings.

FORMULA AND CONSTRUCTION

The formula used for calculating the index is the average of price relatives adaptation of the widely used Laspeyres' formula. The formula used in calculation may be written:

$$\text{INDEX} = \frac{\sum \left\{ \frac{p_0 q_0}{\sum p_0 q_0} \cdot 100 \quad \frac{P_1}{p_0} \cdot 100 \right\}}{100}$$

where: P_1 = current price

p_0 = base period price

q_0 = base period quantity

$\frac{P_1}{p_0} \cdot 100$

$\frac{p_0}{p_0} = \text{item price relative, 1949} = 100$

$p_0 q_0$ = item value in 1949

$\frac{p_0 q_0}{\sum p_0 q_0} \cdot 100$ = item value percentage weight

$\sum p_0 q_0$

Using this formula, calculation of the index proceeds as follows: (1) calculation of price relatives based on $1949 = 100$ for individual commodities; (2) multiplication of price relatives by appropriate value percentage weights; (3) summing these and dividing by 100 to obtain the sub-group indexes; (4) computation of group indexes by weighting and summing the sub-group indexes and (5) computation of the composite index by weighting group indexes, summing the products of the weighted group indexes, and finally, dividing by 100.

If a price series has to be replaced, a substitute series is introduced together with a new base price, the latter calculated so that it will give the same price relative as the old series at the point of substitution. Because price relatives are multiplied by value percentage weights, the introduction of a substitute price, in this manner does not affect the level of the index. One of the advantages of the average of price relatives version of the Laspeyres' formula is that the introduction of a substitute price, which is generally at a different level than the old price, does not necessitate adjustment of the weight of the item.

PRICES AND IMPUTATION

The prices used in the index are, wherever possible, the prices paid by contractors when buying from their usual source of supply and with the conditions of sale which usually prevail. Where this is not possible, manufacturers' or wholesale distributors' prices are used to represent the price movement of items included in the index.

The direct representation in the index of all materials and items in their different sizes, qualities and other variations is a practical impossibility. This difficulty is met by the traditional method of pricing items of a typical and commonly used description, and assuming that other items of similar specification have a similar price movement. In addition to this type of imputation, the weight of other items, materials, or equipment was imputed to individual price series, sub-group indexes, or group indexes where the price behaviour was believed to be sufficiently similar.

The number of price series used to represent the price movement of an item or series of items is not related to the importance of the item but to the number of prices believed necessary to obtain adequate measurement of price movement. If the market for a certain item is dominated by an individual firm or a few firms, one price series from one firm may be a satisfactory indication of the price behaviour of the item. An example of the other extreme is mill-work where, because of the large number of manufacturers and other factors peculiar to the industry, it is considered necessary to use a large number of prices.

The number of price series used for some items is also greater than for other items because of the desirability of using regional prices where this factor is of importance. For those items for which local supply, local transportation costs, and other local conditions are considered to be major deter-

minants of price movement, several prices representing different parts of Canada are used for each item. These prices are weighted by the estimated importance of non-residential building construction in the regions which the prices represented.

For a number of items new price series had to be established. Because of the difficulty of collecting prices for past years quotations for these items were collected back only as far as January 1949, the first month of the base period. For the period 1935-49, the whole of the index was not calculated at the item level, and for much of the index the relevant group and sub-group component indexes of the residential and general building materials indexes were used, being weighted by the value weights of the new index. The resultant annual indexes covering this period are considered a relatively accurate indicator of year to year changes in the price of materials going into non-residential buildings.

EVALUATION OF INDEX WEIGHTS

While the influence on index behaviour of any lack of accuracy in the weighting pattern cannot be determined in any precise mathematical way, it is of significance that the material cost expenditure patterns of the different building types from which the index was constructed were generally similar. Such differences as did occur were generally in accord with the distribution of materials which one would expect in buildings of different types. This similarity in cost patterns for groups of materials used in the different building types puts definite limits on the error which can exist for an index of all types.

For purposes of assessing the variations by use-type in the twelve major material groupings used in calculating the index, the following table compares the distribution of the group weights for the composite index with comparable data for the nine different use-types.

TABLE 1. Patterns of Expenditure on Materials by Building Use-Types

Price indexes calculated for each of the use-type groups for December 1952 were close to the total non-residential index. Seven of the use-type group indexes were within 0.6 per cent of the Non-Residential composite, one was 1.4 per cent higher, and one was 1.0 per cent lower. The closeness of the price indexes produced for the nine use-type groups to the total index, suggests that the Non-Residential Building Materials Price Index is, with certain qualifications, suitable for use in estimating replacement costs for a variety of buildings. The first qualification is that prices vary from region to region and the Non-Residential Price Index was constructed to measure the average price change across Canada. However, for many of the items the price movement, if not the price level, would be very similar in the different regions of Canada. In addition, because of the variety of methods and materials which can be used in construction, material cost patterns and price indexes for individual buildings could differ significantly from those of the total of non-residential building.

COMBINED INDEXES OF WAGE RATES AND MATERIAL PRICES

Material price indexes are often combined with construction labour wage-rate indexes to produce a composite index used for the deflation of series related to the value of construction, and for the estimation of replacement costs. Only on-site labour and material costs are usually incorporated in such indexes with other factors affecting price, such as excavation work, rental of equipment, drafting, depreciation on equipment and plant, office staff salaries, and profit, assumed by their omission to have the same movement as that of the combined wage rates and materials indexes. While this assumption probably results in only slight inaccuracies during most time periods, it seems likely that when prices of labour and materials are moving fairly rapidly, many of these items — with the possible exception of profits — would have movements of a smaller amplitude than either labour or materials. These miscellaneous costs commonly amount to 10 to 20 per cent of the total costs. Unfortunately there is not sufficient information to construct a price index incorporating these miscellaneous items.

However, a study of the importance of on-site labour costs relative to material costs was possible from the data on buildings obtained from the recent survey. It indicated that for non-residential building construction, on-site labour costs, relative to the on-site materials costs were in the ratio of 35 : 65 during the period covered by the survey. Because of the number of assumptions and arbitrary estimates which had to be made in the course of the study, this labour cost-material cost ratio must be considered as only a good approximation for the average of all use-types. For eight of the use-type groupings (churches were not examined for this attribute) the ratio ranged from approximately 30 : 70 to 39 : 61. Accordingly it must be remembered that the 35 : 65 ratio is not the most suitable for every use. It is, of course, the most appropriate in constructing an index related to the total value of non-residential construction.

INDEX BEHAVIOUR 1949-1952

Price movements from January 1949 to December 1952 may be divided into three periods. The first period was one of little movement, the second of rising prices, and the third of levelling off and relative stability.

During the first period from January 1949 to early 1950, both the Residential and Non-Residential Price Indexes fluctuated within narrow limits. This was a continuation of the stable to slightly declining price level which established itself in the latter part of 1948 after the rapidly rising prices in 1947 and the first eight months of 1948.

Although prices in general had begun to turn upward during the first half of 1950 (for example, from January 1950 to June 1950 the General Wholesale Price Index increased 5.1 per cent; the Consumer Price Index 1.8 per cent; the Non-Residential Price Index 2.8 per cent; and the Residential Building Materials Price Index 4.9 per cent), the rate of increase in price of building materials, as well as other indexes, greatly accelerated after the outbreak of hostilities in Korea in June 1950. The table below shows the percentage amount of increase for the five-month period prior to June 1950, and both a five and ten-month period subsequent to June 1950.

	Jan. 1950 to June 1950		June 1950 to Nov. 1950		June 1950 to April 1951	
	Total Increase	Average Monthly Increase	Total Increase	Average Monthly Increase	Total Increase	Average Monthly Increase
Non-Residential	2.8	0.56	5.5	1.10	13.1	1.31
Residential	4.9	0.98	10.0	2.00	20.7	2.07

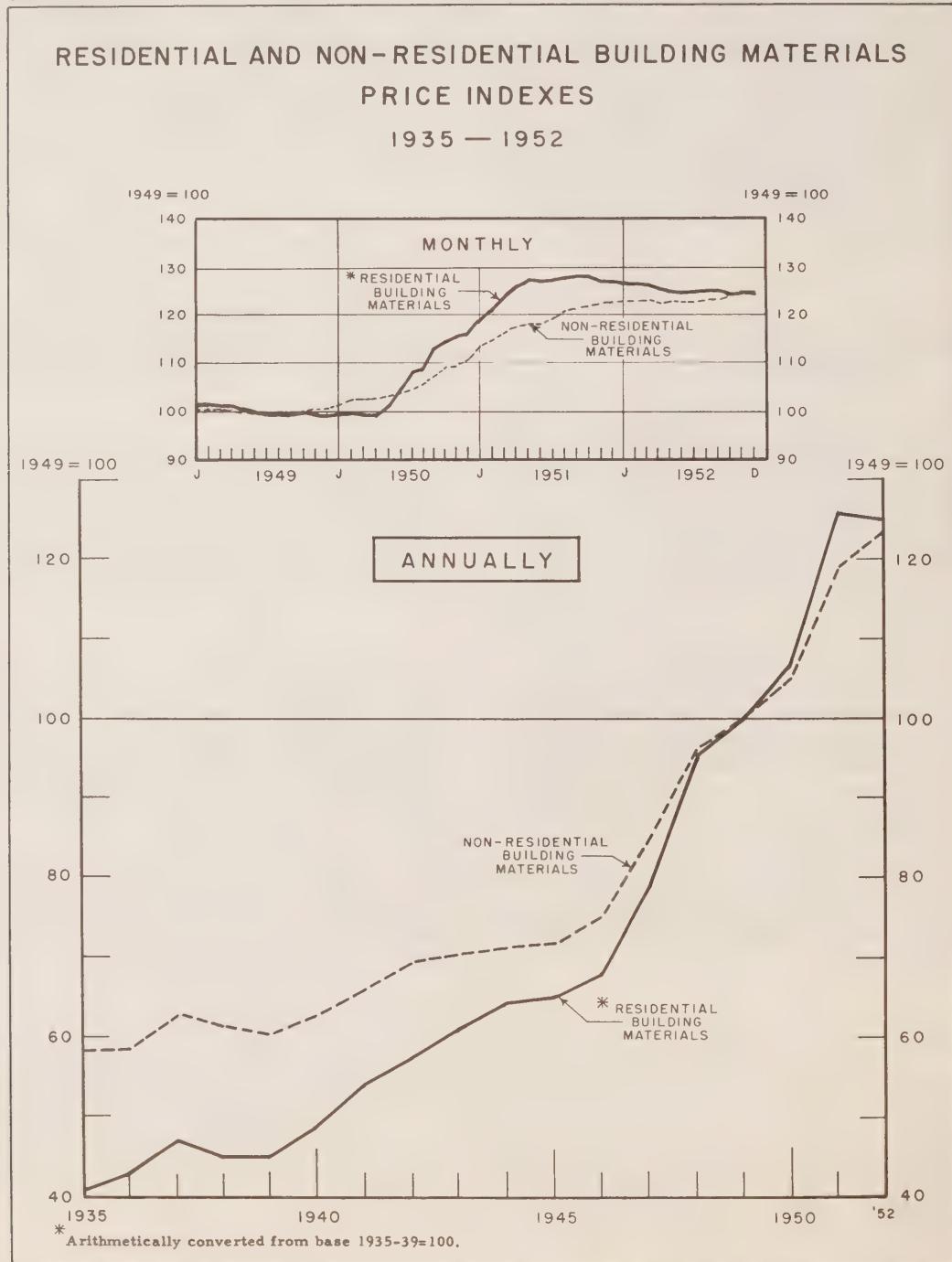
By April 1951 the Non-Residential Index had increased to 117.4 (1949 = 100), and the Residential Index to 126.1 (1949 = 100). The greater increase for the latter series was due to the larger increase in the price of lumber than in other materials, and the greater weight given to lumber in the Residential Index.

The Residential Index levelled off in the second half of 1951 and began a slow and nearly continuous decline to December 1952, at which time it stood at

124.3, 2.5 per cent lower than the peak figure of 127.5 attained in October and November of 1951.

The Non-Residential Building Materials Price Index on the other hand had increased to 121.5 by October 1951. From there it continued with several pauses and interruptions, to increase, although much less rapidly than before, advancing only 2.2 per cent to 124.2, during the fourteen-month period from October 1951 to December 1952.

CHART - 2

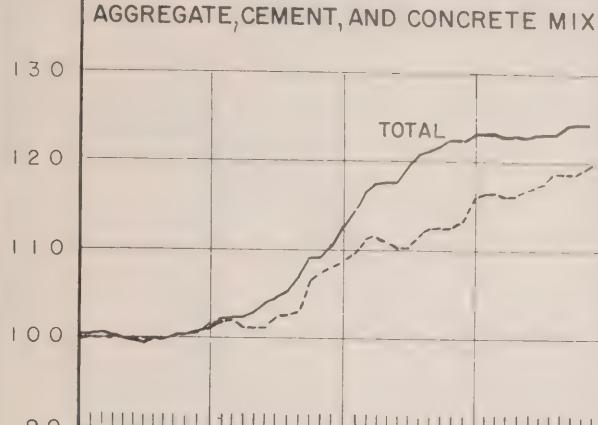


THE TOTAL NON-RESIDENTIAL BUILDING MATERIAL
PRICE INDEX
COMPARED WITH EACH OF ITS MAIN GROUPS

JANUARY 1949 TO DECEMBER 1952

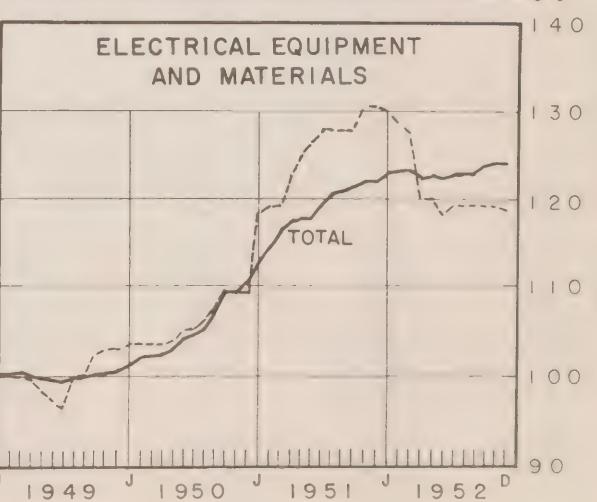
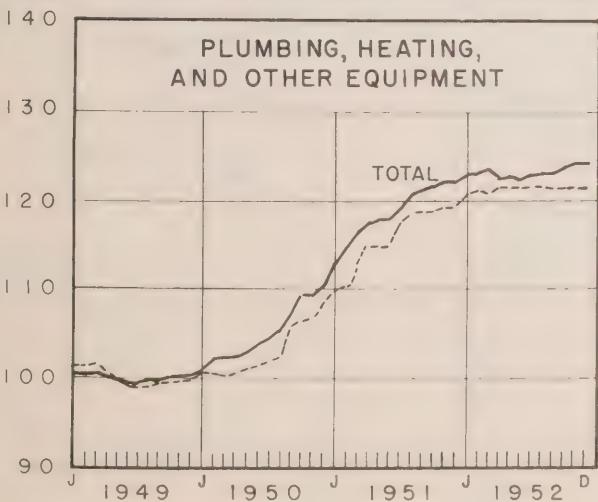
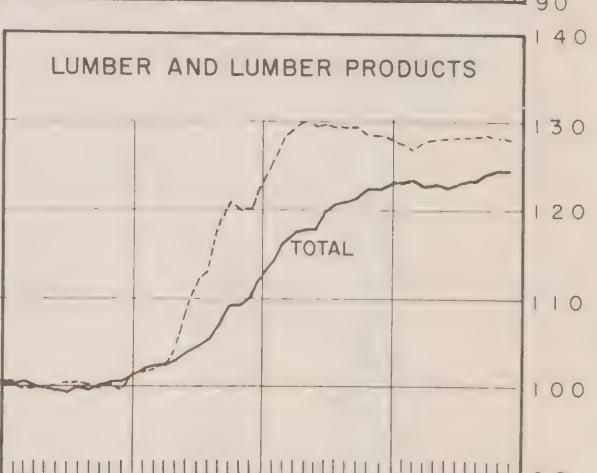
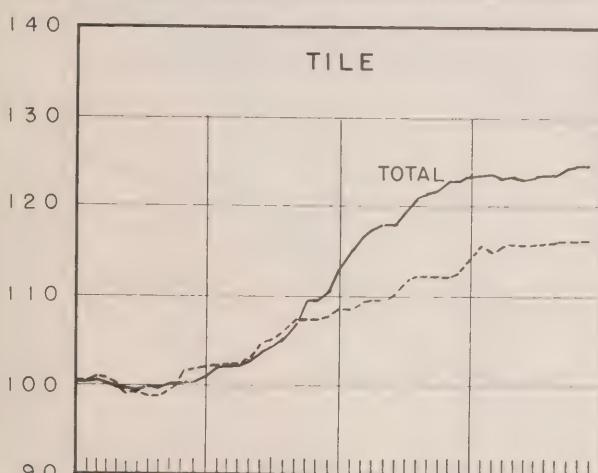
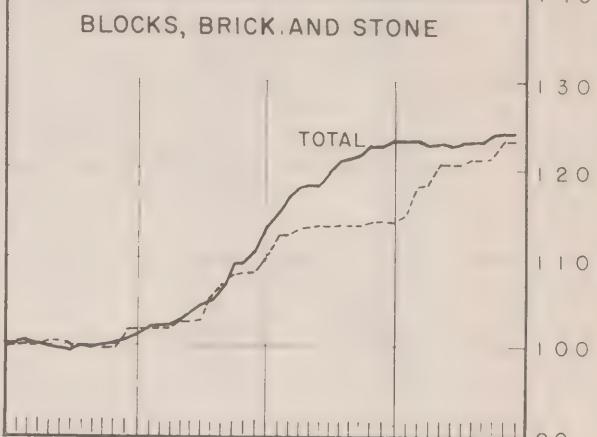
1949=100

140



1949=100

140



J 1949 J 1950 J 1951 J 1952 D

J 1949 J 1950 J 1951 J 1952 D

CHART - 3 (Continued)

THE TOTAL NON-RESIDENTIAL BUILDING MATERIAL
PRICE INDEX
COMPARED WITH EACH OF ITS MAIN GROUPS

JANUARY 1949 TO DECEMBER 1952

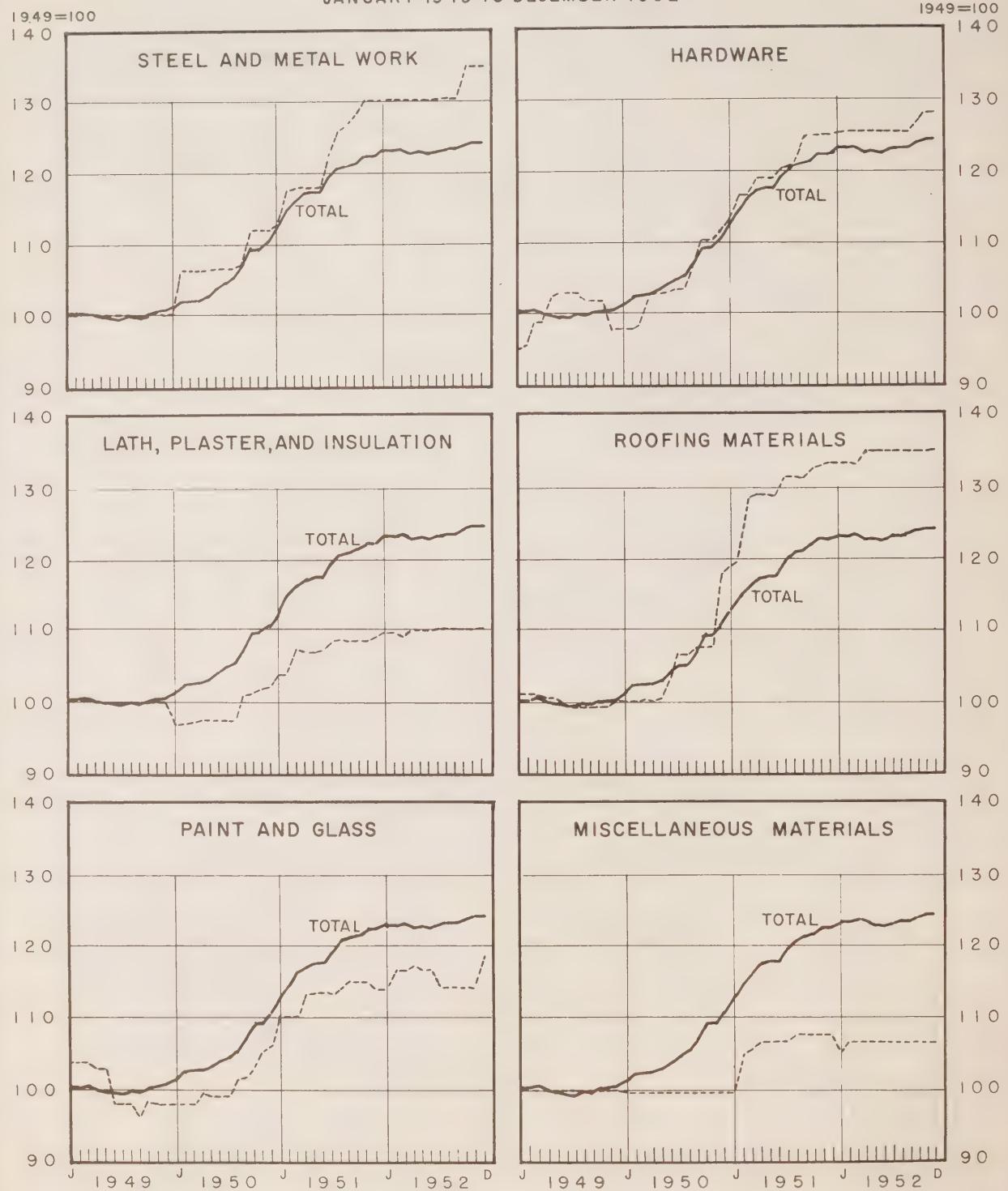


TABLE 2. Building Material Price Indexes 1935-1952
(1949 = 100)

Date	Non-Residential Building Materials	Residential Building Materials ¹	General Building Materials ²
1935	58.0	40.6	40.3
1936	58.4	42.4	42.3
1937	63.0	46.9	46.9
1938	61.4	44.5	44.2
1939	60.3	44.9	44.5
1940	62.2	48.4	47.5
1941	66.1	53.8	53.3
1942	69.2	57.4	57.2
1943	70.2	61.0	60.2
1944	70.9	64.3	63.2
1945	71.4	65.0	63.2
1946	75.0	67.8	66.9
1947	84.5	79.1	82.6
1948	95.9	95.4	97.1
1949	100.0	100.0	100.0
1950	105.0	106.4	109.0
1951	118.6	125.5	126.5
1952	123.2	124.9	125.4

1. Residential Building Materials arithmetically converted from base 1935-39 = 100.

2. General Building Materials arithmetically converted from base 1926 = 100.

TABLE 3A. Non-Residential Building Materials Price Index, Jan. 1949 - June 1953
(1949 = 100)

	1949	1950	1951	1952	1953 ¹
January	100.2	101.0	112.6	123.0	124.4
February	100.2	102.1	114.7	123.0	124.5
March	100.3	102.2	116.2	123.1	124.8
April	100.1	102.3	117.4	122.5	124.6
May	99.8	102.8	117.7	122.7	124.4
June	99.6	103.8	117.7	122.6	124.7
July	99.4	104.5	119.5	122.9	—
August	99.8	105.1	120.7	123.0	—
September	99.7	107.0	121.0	123.0	—
October	100.1	109.4	121.5	123.9	—
November	100.3	109.5	122.3	124.2	—
December	100.4	110.4	122.3	124.2	—
Year	100.0	105.0	118.6	123.2	—

1. 1953 indexes subject to revision.

TABLE 3B. Residential Building Materials Price Index, Jan. 1949 - June 1953
(1949 = 100)

	1949	1950	1951	1952	1953 ¹
January	100.9	99.6	118.5	126.3	124.4
February	100.9	99.7	120.6	126.3	123.8
March	100.7	99.6	123.9	125.8	124.3
April	100.7	99.6	126.1	125.0	124.4
May	100.5	101.2	127.0	124.5	124.0
June	100.0	104.5	126.8	124.3	124.6
July	99.6	107.5	127.1	124.5	—
August	99.3	108.6	127.4	124.6	—
September	99.2	112.4	127.5	124.6	—
October	99.6	114.2	127.5	124.5	—
November	99.3	115.0	126.9	124.3	—
December	99.2	115.5	126.7	124.3	—
Year	100.0	106.4	125.5	124.9	—

1. 1953 indexes subject to revision.

TABLE 4. Price Index Numbers of Non-Residential Building Materials, 1949-1952
(1949 = 100)

No.		Total Index	Group Indexes			
			(1) Aggregate, Cement, and Concrete Mix	(2) Blocks, Brick, and Stone	(3) Tile	(4) Lumber and Lumber Products
1949						
1	January	100.2	99.9	99.7	100.3	100.3
2	February	100.2	100.0	99.7	100.3	100.3
3	March	100.3	100.0	99.8	100.8	99.8
4	April	100.1	99.8	99.8	100.7	99.8
5	May	99.8	99.8	100.3	99.7	99.8
6	June	99.6	99.8	100.3	99.1	100.0
7	July	99.4	99.8	99.7	99.1	100.3
8	August	99.8	99.8	99.9	98.7	100.3
9	September	99.7	99.8	99.9	98.7	100.1
10	October	100.1	100.3	99.6	99.5	99.9
11	November	100.3	100.3	99.6	101.4	100.0
12	December	100.4	100.7	101.5	101.9	99.6
13	Year	100.0	100.0	100.0	100.0	100.0
1950						
14	January	101.0	101.6	101.7	102.3	101.2
15	February	102.1	101.8	101.7	102.4	101.3
16	March	102.2	102.0	101.7	102.5	101.8
17	April	102.3	101.0	101.7	102.3	102.2
18	May	102.8	101.0	102.4	103.0	104.2
19	June	103.8	101.0	102.4	104.9	109.1
20	July	104.5	102.6	102.7	105.2	112.0
21	August	105.1	102.6	105.2	106.2	113.0
22	September	107.0	102.7	107.1	107.3	117.6
23	October	109.4	106.5	108.2	107.6	120.9
24	November	109.5	107.5	108.5	107.6	120.0
25	December	110.4	108.0	108.5	107.9	120.0
26	Year	105.0	103.2	104.3	104.9	110.3
1951						
27	January	112.6	108.9	109.9	108.6	123.0
28	February	114.7	109.7	112.2	108.6	125.3
29	March	116.2	111.3	112.3	109.2	128.0
30	April	117.4	111.5	113.1	109.6	129.1
31	May	117.7	111.1	113.2	109.6	130.0
32	June	117.7	110.3	113.3	110.2	129.2
33	July	119.5	110.3	113.3	111.5	129.5
34	August	120.7	111.9	113.4	112.0	129.4
35	September	121.0	112.1	113.4	112.0	129.3
36	October	121.5	112.4	113.4	112.0	129.6
37	November	122.3	112.4	114.1	112.0	128.6
38	December	122.3	113.2	114.1	112.5	128.3
39	Year	118.6	111.3	113.0	110.6	128.3
1952						
40	January	123.0	115.9	114.1	114.1	128.0
41	February	123.0	116.3	115.0	115.5	127.5
42	March	123.1	116.3	118.1	114.9	126.7
43	April	122.5	116.0	118.2	115.5	127.7
44	May	122.7	116.1	120.6	115.5	128.0
45	June	122.6	116.9	120.6	115.5	128.1
46	July	122.9	117.5	120.6	115.6	128.3
47	August	123.0	118.4	120.9	115.8	128.3
48	September	123.0	118.6	121.1	115.9	128.4
49	October	123.9	118.6	121.1	115.9	128.3
50	November	124.2	118.6	123.0	115.9	128.2
51	December	124.2	119.5	123.0	115.9	127.7
52	Year	123.2	117.4	119.7	115.5	127.9

Note: For 1953 group indexes, see July issue of Prices and Price Indexes.

TABLE 4. Price Index Numbers of Non-Residential Building Materials, 1949-1952
(1949 = 100)

Group Indexes								No.
(5) Plumbing, Heating, and Other Equipment	(6) Electrical Equipment and Materials	(7) Steel and Metal Work	(8) Hardware	(9) Lath, Plaster, and Insulation	(10) Roofing Materials	(11) Paint and Glass	(12) Miscel- laneous Materials	
101.3	100.0	99.9	94.9	100.1	101.0	103.6	100.0	1
101.3	100.0	99.9	95.6	100.1	101.0	103.6	100.0	2
101.4	100.0	100.0	98.9	100.1	101.0	103.6	100.0	3
100.8	99.8	100.0	98.9	99.9	100.5	102.6	100.0	4
99.9	97.9	100.0	102.0	99.9	100.5	102.6	100.0	5
99.3	97.3	100.0	102.5	99.9	99.9	98.0	100.0	6
99.1	96.6	100.0	102.5	99.9	99.2	98.0	100.0	7
99.1	99.9	100.0	102.5	99.9	99.2	98.0	100.0	8
99.4	99.9	100.0	101.3	99.9	99.2	95.9	100.0	9
99.4	102.5	100.0	101.3	100.0	99.3	98.1	100.0	10
99.5	103.0	100.1	101.3	100.0	99.3	98.0	100.0	11
99.6	103.0	100.0	98.0	100.2	100.1	97.9	100.0	12
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	13
101.0	103.4	100.0	98.0	96.9	100.0	97.9	97.7	14
100.3	103.4	106.3	98.0	97.0	100.0	97.9	97.7	15
100.2	103.4	106.3	98.3	97.1	100.1	97.9	97.7	16
100.5	103.4	106.3	102.0	97.5	100.0	99.3	97.7	17
100.9	103.8	106.4	102.7	97.5	100.6	99.0	97.7	18
101.4	105.4	106.5	102.7	97.5	102.5	99.0	97.7	19
102.0	105.4	106.5	103.2	97.5	106.4	99.1	97.7	20
102.1	106.3	106.5	103.2	97.5	106.4	101.1	97.7	21
105.6	107.4	106.9	105.9	100.9	107.5	101.4	97.7	22
106.4	109.5	111.8	110.3	101.0	107.5	102.4	97.7	23
106.6	109.3	111.8	110.3	101.7	107.5	104.8	97.7	24
108.5	109.3	111.8	111.6	101.9	118.2	105.9	97.7	25
103.0	105.8	107.3	103.8	98.7	104.7	100.5	97.7	26
109.8	118.3	112.3	112.8	103.4	118.7	110.1	97.7	27
110.2	119.4	117.7	116.9	103.4	119.8	110.1	104.7	28
112.9	119.4	118.1	116.9	107.1	128.6	110.1	105.5	29
114.6	122.9	118.1	119.2	106.9	129.1	113.2	106.8	30
114.7	124.9	118.1	119.2	106.9	129.1	113.3	106.8	31
114.7	126.7	118.1	119.2	107.0	128.9	113.3	106.8	32
117.2	128.2	122.2	120.1	108.2	131.4	113.2	106.8	33
118.6	128.0	125.8	120.7	108.4	131.4	114.1	107.5	34
118.8	128.0	126.3	123.8	108.3	131.3	114.8	107.5	35
118.8	128.0	127.9	125.0	108.3	132.2	114.8	107.5	36
119.3	130.5	130.0	125.0	108.3	132.9	114.8	107.5	37
119.3	130.5	130.0	125.0	108.8	133.2	113.9	107.5	38
115.7	125.4	122.0	120.3	107.1	128.9	113.0	106.0	39
120.9	130.3	130.1	125.4	109.2	133.2	113.9	105.3	40
121.0	128.7	130.1	125.4	109.2	133.2	116.4	106.5	41
120.8	127.8	130.1	125.4	108.8	133.2	116.4	106.5	42
121.4	120.1	130.1	125.4	109.8	134.9	117.1	106.5	43
121.2	120.1	130.1	125.4	109.8	134.9	116.7	106.5	44
121.4	118.3	130.1	125.4	109.8	134.9	116.7	106.5	45
121.7	119.3	130.2	125.4	110.0	134.9	114.2	106.5	46
121.7	119.3	130.2	125.4	110.0	134.9	114.2	106.5	47
121.6	119.2	130.2	125.4	110.0	134.9	114.2	106.5	48
121.6	119.2	134.7	125.8	110.0	134.9	114.2	106.5	49
121.4	119.2	134.7	128.3	110.0	134.9	114.1	106.5	50
121.4	118.8	134.7	128.3	110.1	135.1	118.7	106.5	51
121.3	121.7	131.3	125.9	109.7	134.5	115.6	106.4	52

Note: For 1953 group indexes, see July issue of Prices and Price Indexes.

APPENDIX

Non-Residential Building Materials Price Index Base Period Percentage Weights

Group, Sub-groups, and Items	Sub-Group Weight	Group Weight
1. Aggregate, Cement, and Concrete Mix		11.1
(a) Sand	1.4	
(b) Crushed Stone	5.6	
(c) Gravel.....	7.1	
(d) Cement	23.5	
(e) Concrete mix	62.4	
2. Blocks, Brick, and Building Stone		9.1
(a) Cinder Block	1.5	
(b) Concrete Block	12.9	
(c) Brick.....	54.8	
(d) Building Stone.....	30.8	
3. Tile		3.8
(a) Ceramic	10.8	
cement; sand; tile.		
(b) Acoustic	14.1	
fibreboard type;		
metal panel, and rockwool type;		
asbestos panel type.		
(c) Terracotta	32.3	
(d) Terrazzo	42.8	
4. Lumber and Lumber Products		10.5
(a) Flooring	5.0	
fir; pine; hard;		
maple; soft maple; birch;		
oak.		
(b) Plywood	5.0	
Douglas Fir.		
(c) Millwork	40.0	
window sash;		
exterior doors; interior;		
doors; moulding.		
(d) Structural Lumber and Lumber for Forms	50.0	
spruce; fir; hemlock;		
white pine; jack pine.		
6. Plumbing, Heating, and Other Equipment		21.4
(a) Sprinklers	3.8	
pipe; valves.		
(b) Air Conditioning Units	5.3	
(c) Elevators	13.7	
(d) Plumbing	32.3	
fixtures; lead pipe;		
asbestos pipe covering;		
soil pipe; galvanized pipe;		
copper pipe.		
(e) Heating	44.9	
electrical controls; boilers;		
stokers; furnaces; oil burners;		
radiators; pipe; duct work.		

APPENDIX

Non-Residential Building Materials Price Index Base Period Percentage Weights — Concluded

Group, Sub-groups, and Items	Sub-Group Weight	Group Weight
6. Electrical Equipment and Fixtures		11.5
(a) Outlet and Switch Boxes	5.0	
(b) Transformers	10.0	
(c) Wire	15.0	
(d) Control Panels	20.0	
(e) Conduit	25.0	
(f) Fixtures	25.0	
7. Steel and Metal Work		20.1
(a) Sheet Metal	1.5	
(b) Metal windows..... metal windows; weather strip; spiral balance; hardware.	6.6	
(c) Metal Fire Doors and Partitions	8.8	
steel, copper and aluminum sheets; bolts; steel bars; nails; wood; paint.		
(d) Reinforcing Steel	34.8	
(e) Structural Steel	48.7	
8. Hardware		3.7
range boiler; machine bolts; wire cloth; wire nails; wood screws.		
9. Lath, Plaster, and Insulation		2.3
(a) Wallboard	3.4	
ground wood wallboard; gypsum wallboard.		
(b) Stucco	6.0	
(c) Insulation	29.5	
rock wool batts.		
(d) Plaster	61.1	
gypsum and metal lath; hydrated lime; cement; interior hardwall plaster; sand; plaster-of-paris.		
10. Roofing Materials		2.9
dry felt; tar felt; pitch; gravel; flashing.		
11. Paint and Glass		1.9
(a) Paint	40.4	
primer sealer; paint; enamel; varnish; shellac; turpentine; linseed oil.		
(b) Glass	59.6	
plate glass; window glass; glass bricks.		
12. Miscellaneous Materials		1.7
linoleum; asphalt tile; rubber tile.		

